

What is claimed is:

1. A surgical instrument for inserting an implant, comprising:

a handle assembly at a proximal end of the instrument;

5 an actuator assembly extending along a longitudinal axis and operably coupled with said handle assembly, and

an implant engaging portion at a distal end of the instrument, said implant engaging portion including a holder positionable in contact with the implant and a clamp assembly coupled with said actuator assembly, said clamp assembly including a pair of
10 distal arm portions adjacent said holder and movable toward one another to engage the implant between said distal arm portions, said distal arm portions further being movable proximally relative to said holder with said actuator assembly upon manipulation of said handle assembly to release the implant from between said distal arm portions while said holder maintains contact with the implant.

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2. The instrument of claim 1, wherein said holder includes first and second extensions and a cradle surface extending along and between said first and second extensions, the implant being positionable between said first and second extensions in contact with said cradle surface.

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3. The instrument of claim 1, wherein said holder is aligned between said distal arm portions.

4. The instrument of claim 1, wherein said distal arm portions each include a distal end and are curved along the longitudinal axis to offset said distal ends to a first side of the longitudinal axis.

5 5. The instrument of claim 4, wherein said holder is positioned at a distal end of a holder arm, said holder arm extending along the longitudinal axis and including a curved distal portion to offset said holder to the first side of the longitudinal axis.

10 6. The instrument of claim 5, wherein said holder includes first and second extensions and a cradle surface extending along and between said first and second extensions, the implant being positionable between said first and second extensions in contact with said cradle surface, wherein said first and second extensions extend transversely to the longitudinal axis.

15 7. The instrument of claim 6, wherein said handle assembly includes first and second handle members transversely oriented to the longitudinal axis and extending therefrom in a direction opposite the first side.

20 8. The instrument of claim 1, wherein said handle assembly includes a first handle member and a second handle member pivotally coupled to said first handle member

9. The instrument of claim 8, wherein:
said handle assembly includes a holder arm extending distally from said first handle member along the longitudinal axis, said holder arm including said holder at a
25 distal end thereof; and

said actuator assembly is operably coupled with said second handle member.

10. The instrument of claim 9, wherein:

said clamp assembly extends between a proximal end and a distal end and

5 includes a pair of clamping members, said distal arm portions comprise a distal portion of said pair of clamping members and extend distally from said clamp assembly, wherein:

said proximal end of said clamp assembly is coupled to said actuating assembly;

said distal end of said clamp assembly is coupled to said holder arm; and

movement of said second handle member relative to said first handle member

10 actuates said actuating assembly and translates said clamp assembly and said distal portions of said pair of clamping members along said holder arm.

11. The instrument of claim 10, further comprising a spring mechanism between said first and second handle members, wherein said spring mechanism normally biases said

15 handle assembly in a first orientation wherein said clamp assembly is distally positioned relative to said holder arm, and movement of said second handle member toward said first handle member translates said clamp assembly and said distal portions of said clamping arms proximally along said holder arm.

20 12. The instrument of claim 10, wherein said actuating assembly includes:

a link member extending between a distal end and a proximal end, said proximal end of said link member being pivotally coupled to said second handle member; and

a crank member including a rotational center pivotally coupled to said holder arm,

a proximal pivot end pivotally coupled to said distal end of said link member, and a distal

25 pivot end pivotally coupled to said proximal end of said clamp assembly.

13. The instrument of claim 12, wherein in an undeployed position of said clamp assembly said proximal end of said clamp assembly is positioned adjacent the longitudinal axis and in a deployed position of said clamp assembly said crank member is rotated about said rotational center with said link member acting on said proximal pivot end to move said distal pivot end and said proximal end of said clamp assembly proximally and away from the longitudinal axis.

14. The instrument of claim 1, wherein said clamp assembly extends between a proximal end and a distal end and said distal arm portions extend distally from said distal end, said actuating assembly being coupled to said proximal end of said clamp assembly; and further comprising:

a holder arm extending distally from said handle assembly along the longitudinal axis, said holder being at a distal end of said holder arm and said distal end of said clamp assembly being coupled with said holder arm, wherein said clamp assembly and said distal arm portions are movable along said holder arm by actuating said actuating assembly.

15. The instrument of claim 14, wherein said clamp assembly includes a first lever arm coupled with a first one of a pair of clamping members and a second lever arm coupled with a second one of a pair of clamping members, said distal arm portions comprising a distal portion of respective ones of said clamping members, said first and second lever arms being pivotally coupled to one another and movable relative to one another to displace said distal arm portions of said pair of clamping members toward one

another to a clamping position and to displace said distal arm portions of said pair of clamping members away from one another to a release position.

16. The instrument of claim 15, wherein said clamp assembly includes a lever locking assembly releasably engageable to said lever arms to maintain a positioning between said distal arm portions of said pair of clamping members.

17. The instrument of claim 16, wherein said lever locking assembly includes a lock member and a lock button pivotally coupled to said lock member, said lock member including first and second locking arms extending therefrom and releasably engageable with an adjacent one of said first and second lever arms.

18. The instrument of claim 17, wherein said lock member is normally biased into engagement with said first and second lever arms, and is movable out of engagement with said first and second lever arms by depressing said lock button.

19. The instrument of claim 16, wherein said clamp assembly includes a housing, said lever locking assembly and said first and second lever arms being at least partially contained within said housing.

20. The instrument of claim 20, wherein said housing includes an upper plate and a lower plate, said upper plate being coupled to said lower plate and said lower plate being coupled at a distal end thereof to said holder arm and at a proximal end thereof to said actuating assembly.

21. A surgical instrument for inserting an implant, comprising:

a handle assembly;

a clamp assembly extending from said handle assembly along a longitudinal axis, said clamp assembly including a pair of distal arm portions to engage the implant therebetween; and

an implant engaging portion at a distal end of the instrument, said implant engaging portion including a holder positionable in contact with the implant and said pair of distal arm portions adjacent said holder, said distal arm portions being movable relative to one another to engage the implant therebetween with said holder in contact with the implant, wherein said holder and said distal arm portions are each offset to a first side of the longitudinal axis.

22. The instrument of claim 21, wherein said handle assembly includes first and second handle members transversely oriented to the longitudinal axis.

23. The instrument of claim 22, wherein said first and second handle members extend from the longitudinal axis in a direction opposite the first side of the longitudinal axis.

24. The instrument of claim 21, further comprising an actuator assembly operably coupled between said clamp assembly and said handle assembly, said actuator assembly being manipulatable with said handle assembly to proximally translate said distal arm portions away from said holder.

25. The instrument of claim 21, further comprising an actuator assembly operably coupled between said clamp assembly and said handle assembly, said actuator assembly

being manipulatable with said handle assembly to translate said distal arm portions toward said longitudinal axis.

26. The instrument of claim 21, further comprising an actuator assembly operably coupled between said clamp assembly and said handle assembly, said actuator assembly being manipulatable with said handle assembly to proximally translate said distal arm portions proximally away from said holder and toward said longitudinal axis.

27. The instrument of claim 26, wherein said holder is at a distal end of a stationary holder arm extending between said handle assembly and said holder.

28. The instrument of claim 27, wherein said actuator assembly includes:

a link member extending between a proximal end and a distal end, said proximal end being pivotally coupled with said handle assembly; and

a crank member pivotally coupled at an axially fixed rotational center to said holder arm, said crank member further being pivotally coupled at a proximal pivot end thereof with said link member and being pivotally coupled at a distal pivot end of said crank member with said clamping assembly.

29. The instrument of claim 28, wherein said clamp assembly includes a pair of clamping members and a housing, said distal arm portions comprising a distal portion of respective ones of said pair of clamping members, said distal arm portions extending distally from said housing.

30. The instrument of claim 29, wherein a proximal end of said housing is coupled to said distal pivot end of said crank member and a distal end of said housing is pivotally coupled to a slot in said holder arm, said slot being elongated along the longitudinal axis.

5 31. The instrument of claim 29, wherein said clamp assembly includes first and second lever arms pivotally coupled to said housing and to respective ones of said pair of clamping members, said lever arms being pivotal to move said distal arm portions of clamping members toward one another to clamp an implant therebetween.

10 32. A surgical instrument for inserting an implant, comprising:
a handle assembly at a proximal end of the instrument;
an actuator assembly extending along a longitudinal axis, and
an implant engaging portion at a distal end of the instrument, said implant
engaging portion including a holder positionable in contact with the implant and a clamp
15 assembly, said clamp assembly including a pair of distal arm portions adjacent said holder
and movable toward one another to engage the implant between said distal arm portion,
wherein said actuator assembly is operably coupled between said handle assembly and
said clamp assembly, said actuator assembly being manipulatable with said handle
assembly to translate said distal arm portions away from said holder and toward said
20 longitudinal axis.

33. The instrument of claim 32, wherein said holder is positioned between said distal arm portions.

34. The instrument of claim 32, wherein said distal arm portions are curved along the longitudinal axis such that distal ends of said distal arm portions are offset to a first side of the longitudinal axis.

5 35. The instrument of claim 34, wherein said holder is positioned at a distal end of a holder arm, said holder arm extending along the longitudinal axis and including a curved distal portion to offset the holder member to the first side of the longitudinal axis.

10 36. The instrument of claim 32, wherein said holder includes first and second extensions and a cradle surface extending along and between said first and second extensions, the implant being positionable between said first and second extensions in contact with said cradle surface.

15 37. The instrument of claim 32, wherein said handle assembly includes first and second handle members transversely oriented to the longitudinal axis.

38. The instrument of claim 32, wherein handle assembly includes a first handle member coupled to a second handle member

20 39. The instrument of claim 38, wherein said handle assembly further includes a holder arm extending distally from said first handle member, said holder arm including said holder at a distal end thereof.

25 40. The instrument of claim 32, wherein said clamp assembly extends between a proximal end and a distal end, said distal arm portions extending distally from said distal

end, said distal end of said clamp assembly being pivotally coupled in a slot in said holder arm and said proximal end of said clamp assembly being pivotally coupled to said actuator assembly.

5 41. The instrument of claim 40, wherein said clamp assembly includes a first lever arm coupled with a first one of a pair of clamping members and a second lever arm coupled with a second one of said pair of clamping members, said distal arm portions comprising a distal portion of respective ones of said pair of clamping members, said first and second lever arms being pivotally coupled to one another and movable to position
10 said distal arm portions of said pair of clamping members adjacent one another in a clamping position and to position said distal arm portions of said pair of clamping members away from one another to a release position.

15 42. The instrument of claim 41, wherein said clamp assembly includes a lever locking assembly releasably engageable to said lever arms to maintain a relative position between said pair of clamping members.

20 43. The instrument of claim 42, wherein said lever locking assembly includes a lock member and a lock button pivotally coupled to said lock member, said lock member including first and second locking arms extending therefrom and releasably engageable with an adjacent one of said first and second lever arms.

44. A surgical instrument for inserting an implant, comprising:
 a handle assembly at a proximal end of the instrument;

an implant engaging portion at a distal end of the instrument, the instrument extending along a longitudinal axis between its proximal and distal ends, said implant engaging portion including a holder positionable in contact with the implant and a pair of distal arm portions adjacent said holder, said pair of distal arm portions movable toward one another to engage the implant therebetween; and

means for coupling said handle assembly with said implant engaging portion, said means being operable with said handle assembly to translate said pair of distal arm portions proximally and transversely to the longitudinal axis and away from said holder.

45. The instrument of claim 44, wherein said distal arm portions each include a distal end, and said holder and said distal ends of said distal arm portions are offset to a first side of the longitudinal axis.

46. A surgical method for inserting an implant between adjacent spinous processes, comprising

forming an opening laterally offset from a spinal midline and adjacent the adjacent spinous processes;

holding an implant in a reduced size configuration;

inserting the implant through the opening and between the spinous processes

while maintaining the reduced size configuration through the opening; and

releasing the inserted implant to engage the spinous processes on each side of the spinal midline with the implant.

47. The method of claim 46, wherein the implant includes adjacent first and second portions and a first engaging surface therealong for engaging one of the adjacent spinous

processes and third and fourth portions opposite respective ones of the first and second portions and a second engaging surface along said third and fourth portions for engaging the other of the spinous processes.

5 48. The method of claim 47, wherein inserting the implant includes placing the first and third portions of the implant along lateral sides of the adjacent spinous process that are opposite the side of the mid-line in which the opening was formed.

10 49. The method of claim 48, wherein holding the implant includes compressing the first and third portions to obtain the reduced size configuration.

50. A method for holding a spinal implant for insertion into space between adjacent bony portions of the spinal column, comprising:

15 positioning the spinal implant in a holder;
 compressing at least a portion of the spinal implant extending from the holder;
 positioning the compressed portion of the spinal implant through a space between the adjacent bony portions; and
 releasing the compressed portion of the spinal implant to engage the implant to the adjacent bony portions while maintaining engagement of the spinal implant with the
20 holder.

51. The method of claim 50, further comprising repositioning the released spinal implant in the space with the holder.

25 52. The method of claim 50, further comprising:

forming an opening laterally offset from a spinal midline and to access adjacent spinous processes; and

positioning the compressed portion of the implant includes positioning the compressed portion of the implant through the space between the adjacent spinous processes.

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